**Patterns and Functions: Numeric Patterns of 2's, 5's, and 10's**

**Brief Overview:**

- This 3-day concept development unit teaches skip counting by 2's, 5's, and 10's. The unit introduces function tables by using Input Output boxes. Students will identify, describe, extend, and create numeric patterns.

**NCTM Content Standard**
Algebra: Understand patterns, relations, and functions

- sort, classify, and order objects by size, number, and other properties;
- recognize, describe, and extend patterns such as sequences of sounds and shapes or simple numeric patterns and translate from one representation to another;
- analyze how both repeating and growing patterns are generated.

**Grade/Level:**

Grade 2

**Duration/Length:**

Three 50 to 60 minute lessons

**Student Outcomes:**

Students will:

- Represent and analyze numeric patterns using skip counting by 2's, 5's, and 10's starting with any whole number and using whole numbers to 100.
- Represent and analyze numeric patterns using skip counting backwards.
- Recognize function patterns as a relationship between numbers.

**Materials and Resources:**

- 100 chart overhead transparency
- Overhead circle counters in yellow, red, and blue
- 100 chart for each student
- Yellow, red, and blue crayon for each student
- Teacher resource sheets (Resource Sheet #'s 2, 4,6,7-12, 14A, 14B, 16A, 16B, 18, 20, 22, 24, 26, 27)
- Student resource sheets (Resource Sheet #'s 1, 3, 5, 13A, 13B, 15A, 15B, 17, 19,21,23,25, 27)
- At least 4 index cards per student

**Development/Procedures:**

Lesson 1 NOTE: The teacher needs to be sensitive to the possibility that a student may not have two feet or ten toes.

Preassessment –

- Students review First Grade concepts of counting by 2's and 10's.
- The teacher asks students to skip count chorally by 2's beginning at 2, and skip count chorally by 10's beginning at 10.
- The teacher writes the following sequence of numbers on the board: 2, 4, 6, 8, 9, 10, and 12. The teacher tells the students that one number does not fit the pattern. Ask the students to tell which number does not fit, and explain why they chose that number.
- The students respond that 9 does not fit because we are counting by 2's, and 9 does not fit the pattern.
- The teacher writes the next sequence of numbers on the board: 10, 20, 30, 40, 47, and 50. The teacher tells the students that one number does not fit the pattern. Ask the students to tell which number does not fit the pattern, and give reasons to justify their answer.
- The students respond that 47 does not belong because we are counting by 10's, and 47 does not fit the pattern.

Launch –

- The teacher tells the students that today they will find skip counting patterns using their shoes and toes. Students remove their shoes and socks and place them on their desks.

Teacher Facilitation –

- The teacher tells the students that they will count the total number of shoes in the class to make a 2's skip counting pattern.
- Students come to the front of the class with their shoes when called. The students line up their pair of shoes neatly against one wall.
- The teacher asks each student how many total shoes are against the wall. The first student responds that there are 2 shoes against the wall, and sits down. The teacher writes 2 on the board. The next student comes to the front of the class with his/her shoes. The teacher asks the second student how many shoes are now against the wall. He/she responds that there are 4 shoes against the wall, and then sits down. The teacher writes 4 on the board. Students continue to place their shoes against the wall one at a time, and the teacher continues to record the students' answers.
- When all students have had a turn to place their shoes against the wall, the teacher asks students how many total shoes are on the wall. Then the teacher asks the students to review the pattern. Students chorally read the 2's skip counting pattern on the chalkboard together.
- The teacher tells the students that they will count the total number of toes in the class to make a 10's skip counting pattern.
- The teacher tells the students to skip count the total number of toes by 10 out loud as they line up against the wall. The first student responds that there are 10 toes against the wall, and remains standing. The teacher writes 10 on the board. The

next student comes to the front of the class and stands next to the first student. The teacher asks the second student how many toes are now against the wall. She responds that there are 20 toes against the wall. The teacher writes 20 on the board. Students continue to stand against the wall one at a time, and the teacher continues to record the students' answers. When all students have had a turn and are standing against the wall, the teacher asks students to review the skip counting pattern. Students chorally read the 10's skip counting pattern on the chalkboard together, collect their socks and shoes, and put them on.

- Using a 100 chart (Resource Sheet 27)transparency, the teacher models the skip counting patterns that are still written on the board.
- Using yellow transparency counters, the teacher covers the numbers in the 2's skip counting pattern as the children count chorally.
- Using red transparency counters, the teacher covers the numbers in the 10's skip counting pattern.
- The teacher asks students if they notice anything special about the 10's skip counting pattern. Students should respond that the 10's skip counting pattern looks like it is covered with an orange counter. The teacher responds that this is correct. She asks students why this has happened. This is because the 10's skip counting pattern is part of both the 2's and 10's skip counting patterns. (Yellow and red transparency circles make an orange looking counter.)
- The teacher asks students to describe what the 2's and 10's skip counting patterns look like on the 100 chart using think, pair, share. (Think, pair, share is a cooperative learning technique in which students first think of the answer individually. Then they share with a buddy. Lastly, the whole class shares collectively.) Students respond by identifying both the visual pattern (rows and columns) as well as the numerical pattern (the numbers containing the 2's skip counting pattern have 2, 4, 6, 8, 0 in the ones column repetitively). The students respond that the 2's skip counting pattern looks like it skips every other column and makes long straight columns. The 10's skip counting pattern makes one long straight column.

Student Application –

- The students will explore a new skip counting pattern for the 5's. Using their blue crayon the teacher will have the students shade in the numbers 5 and 10 on a hundreds chart (Resource Sheet 27). The students will then be asked to extend the pattern by 3 numbers.
- The teacher then asks students to describe what the 5's skip counting pattern looks like on the 100 chart using think, pair, share. Students respond by identifying both the visual pattern (rows and columns) as well as the numerical pattern (the numbers containing the 5's skip counting pattern have 5 and 0 in the ones column repetitively). The students should respond that the 5's skip counting pattern looks like it makes two long columns. One long column starts with the number 5, and the other column starts with the number 10. The 5's skip counting pattern also includes all of the 10's skip counting pattern.

- The teacher asks each student to take out one yellow, red, and blue crayon. The students color the numbers in the 2's skip counting pattern in yellow, the 10's skip counting pattern in red, and circle the 5's skip counting pattern in blue.
- The students will complete Fifth Street Homes activity sheet (Resource Sheet 1). Students label house addresses by skip counting by 2's. The students identify how many people live on Fifth Street by skip counting by 5's.

Embedded Assessment – Students will complete Fifth Street Homes sheet (Resource Sheet 1). Answer key may be found on Teacher Resource Sheet 2. The teacher will look to see that students can accurately skip count by 2's and 5's.

Reteaching/Extension –

- Reteaching: Students complete Fifth Street Review (Resource Sheet 3) in a small group with the teacher. Answer key may be found on Teacher Resource Sheet 4. The teacher uses counters to help students skip count more concretely by 2's. In the first problem, the students will make a group of 10 counters. Then, the teacher directs them to add two more counters to their group of 10. The teacher asks the students how many counters are now in their group. Students will answer 12. The teacher continues to monitor the group as they complete the review page.
- Students will complete Fifth Street Extension (Resource Sheet 5) that will challenge students to skip count by 2's and 5's using larger numbers. Answer key may be found on Teacher Resource Sheet 6. Students will demonstrate their knowledge of skip counting by 2's and 5's, and extend their knowledge to 3 digit numbers.

Lesson 2

Preassessment -

- Students skip count around the room by 10's and 5's. First, students skip count by 10's. The teacher points to one student at a time. The teacher points to the first student. The student holds up 10 fingers, and says 10. The teacher points to the second student. The second student will hold up 10 fingers and says 20. The students will continue to skip count by 10 until everyone has had a turn.
- Next, students will skip count by 5's. The teacher will point to one student at a time. The teacher will point to the first student. The student will hold up 5 fingers, and will say 5. The teacher will point to the second student. The second student will hold up five fingers and say 10. The students will continue to skip count by 5 until everyone has had a turn.

Launch-

- The teacher tells the students that today we are going to skip count using the Sears Tower elevators.
- The teacher tells students about the Sears Tower, located in Chicago, Illinois. The Sears Tower is the tallest building in North America. It stands 1,450 feet tall, and is 110 stories high. If possible, the teacher should show students a picture of the actual Sears Tower. Pictures and information can be found at http://www.searstower.com.

- The teacher builds the model of the Sears Tower using teacher resource sheets 7-12. The model should be trimmed and taped together in numerical order prior to posting. The model tower should be trimmed on the vertical lines.

Teacher Facilitation-

- The teacher demonstrates skip counting by 5's and 10's using the model of the Sears Tower. The teacher posts the model of the Sears Tower for all students to see. The teacher tells students that the Sears Tower has three elevators. One elevator skip counts by 2's. Another elevator skips counts by 5's. Another elevator skips by 10's. The teacher asks students what will happen if the elevator starts on the first floor and skip counts by 2's, and moves 4 times. On what floor will the doors open? Using clothespins, students move elevator cars along the model Sears Tower marking the floors where they stop. The students should respond that the doors will open on the $9^{th}$ floor and clip the clothespin to the $9^{th}$ floor. The teacher continues posing several other scenarios with the 2's elevator.
- The teacher asks the students what will happen if the elevator starts on the first floor and skip counts by 5's, and moves 4 times. On what door will the floors open? Using clothespins, students move elevator cars along the model Sears Tower marking the floors where they stop. The students should respond that the doors will open on the $21^{st}$ floor and clip the clothespin to the 21st floor. The clothespin should be clipped to the $21^{st}$ floor. The teacher continues posing several other scenarios with the 5's elevator.
- The teacher asks the students what will happen if the elevator starts on the first floor and skip counts by 10's, and moves 4 times. On what door will the floors open? Using clothespins, students move elevator cars along the model Sears Tower marking the floors where they stop. The students should respond that the doors would open on the $41^{st}$ floor and clip the clothespin to the 41st floor. The teacher continues posing several other scenarios with the 10's elevator.

Student Application

- The students complete Which Floor Am I On? (Resource Sheets 13A and 13B) Students color building floors by skip counting by 2's, 5's, and 10's. The students identify which floors their friend may be hiding on.
- Students will be able to skip count forward or backward by 2's, 5's, and 10's using the Which Floor Am I On? Resource Sheets 13A/13B. Answers may be found on Teacher Resource Sheets 14A/14B.

Embedded Assessment- Teachers utilize on going teacher observations for data collection. Students should be able to skip count by 2's, 5's, and 10's when beginning with any whole number.

Reteaching/Extension

- Reteaching: Students complete Reviewing Which Floor am I On? (Resource Sheet 15A/15B) in a small group with the teacher. The teacher directs students to identify the building floors as a vertical number line. The teacher explains to the students that vertical and horizontal number lines work the same way. Students begin at a number and count either up or down. Answers may be found on Teacher Resource Sheets 16A/16B.

- Students complete Extending Which Floor Am I On? (Resource Sheet 17) which will challenge students to skip count by 5's and 10's and extend their knowledge using larger 2 digit numbers. Answers may be found on Teacher Resource Sheet 18.

Lesson 3

Preassessment-

- The teacher quickly reviews skip counting by 2's, 5's, and 10's by playing Buzz. This is a game in which students count around the room by 1s. (1,2,3….) Students are directed to say, "buzz" if their number is part of the designated pattern. (2's pattern, 1, 2 "buzz", 3, 4 "buzz"; 5's pattern, 1, 2,3,4,5 "buzz")

Launch-

- The teacher shows the students the Input Output Box. The box is labeled with the word Input above one opening and Output above a second opening. The teacher asks students to brainstorm how this box could be used.
- The teacher tells students that they have Input Output Boxes in their homes. The teacher asks students to think about what happens when a piece of bread is placed in a toaster oven. What does the bread look like when it goes in to the toaster? What does the bread look like when it comes out of the toaster? What does the toaster do to the bread? The teacher asks students to think about what happens when dirty clothes are placed into a washing machine. What does the washing machine do to the clothing? What happens when the clothing comes out of the washing machine? (Other examples: pencil sharpener, microwave oven, and car wash)
- The teacher passes out a blank index card to five randomly selected students and asks each student to write down a 1 or 2 digit number. Students are invited to place their card through the Input opening one at a time. The teacher sits in the box and writes the output on the other side of the card. The output is determined by adding 2. The teacher does not tell the students this yet. She passes the card through the Output opening to the student. The student then reads both input and output numbers to the class.
- After the five students have had a turn to place a card in the Input Output Box, the teacher asks all the students to look back at the brainstorming they did regarding the function of the box.
- Students eliminate incorrect guesses and attempt to identify the purpose of the Input Output Box.

Teacher Facilitation-

- The teacher introduces the correct function of the Input Output Box. She reveals that the function of the box is to take the number placed in the Input opening and change it according to a certain rule and return it through the Output opening. Students are to guess the rule of the Input Output Box. The teacher tells students that right now the only person who can change the rule is the teacher.

Student Application-

- Teacher places at least three other Input Output Boxes around the room. She selects volunteers to manage each of the Input Output Boxes. The rule for each

Input Output Box is different, and is secretly told by the teacher to the student manager. The rule for each Input Output Box is +2, +5, or +10.

- The class is divided into the same number of groups, as there are Input Output Boxes. Each group goes to a box and each student writes a 1 or 2 digit number on an index card. The students place their cards in an Input Output Box and the student manager returns the cards with the appropriate Output according to the secret rule. Students have to correctly guess the box's rule.
- They check with the student manager and then move to a new box and repeat the process.
- The students complete Computer Calculator Practice (Resource Sheet 19). Answers may be found on Teacher Resource Sheet 20. Students find output for a given number and also find the secret rules used by the Computer Calculators.

Embedded Assessment- Teachers utilize on going teacher observations for data collection. Students should be able to find function patterns for +2, +5, and +10.

Reteaching/Extension

- Reteaching: Students complete Computer Calculator Review (Resource Sheet 21) in a small group with the teacher. The review sheet presents the addition problem underneath each Input Output Box to provide a more concrete representation. Answers may be found on Teacher Resource Sheet 22.
- Extension: Students will complete Computer Calculator Extension (Resource Sheet 23). This will challenge students to find output for a given number and also find the secret rules used by the Computer Calculators using larger numbers. Answers may be found on Teacher Resource Sheet 24.

**Summative Assessment**:
(Resource Sheet 25)

- Students will identify a repeating 2's skip counting pattern. They will identify numbers not included in this pattern.
- Students will identify a repeating 5's skip counting pattern. They will identify missing terms in a sequence.
- Students will create their own patterns that skip count by 10's.
- Students will identify input and output for simple function patterns. Students will identify a rule for a function pattern.
- Students will explain how they identify a rule for a function pattern using input and output.

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Name_____

# Fifth Street Homes

Number the homes that have lost their addresses. There are five people living in each home on Fifth Street. Skip count by fives to find how many people live on one side of the street.

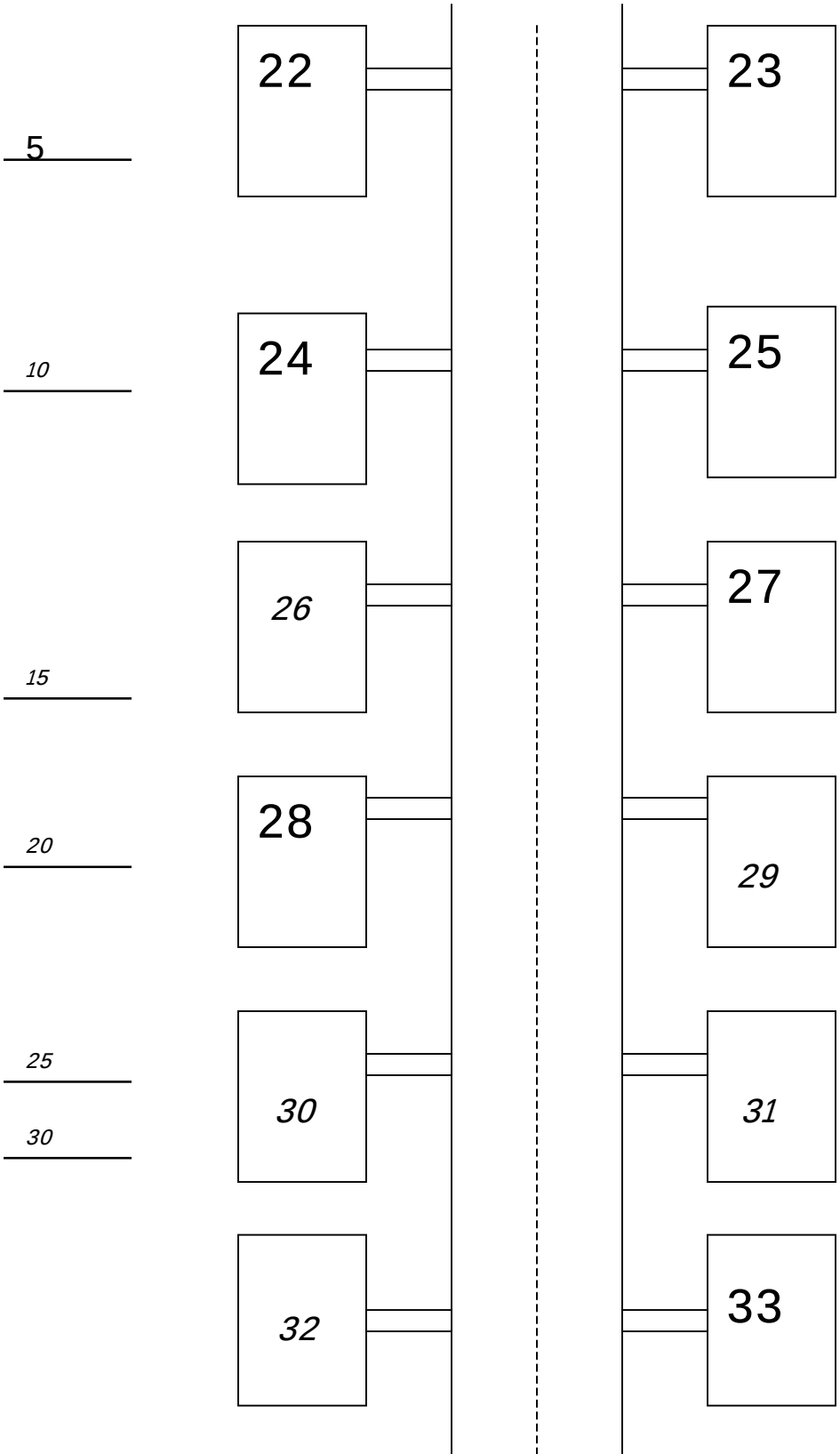
| | | |
|---|---|---|
| 5 | 22 | 23 |
| | 24 | 25 |
| | | 27 |
| | 28 | |
| | | |
| | | 33 |

Answer Key

N

## Fifth Street Homes

Number the homes that have lost their addresses. There are five people living in each home on Fifth Street. Skip count by fives to find how many people live on one side of the street.



Name_____

# Reviewing the Fifth Street Homes

Number the homes that have lost their addresses.

| | |
|---|---|
| 10 | 11 |
| | 13 |
| 14 | |
| 16 | 17 |
| | |
| 20 | 21 |

# Answer Key

**Name**_____

## Reviewing the Fifth Street Homes

Number the homes that have lost their addresses.

| | |
|---|---|
| 10 | 11 |
| *12* | 13 |
| 14 | *15* |
| 16 | 17 |
| *18* | *19* |
| 20 | 21 |

**Name**_____

# Extension of the Fifth Street Homes

Number the homes that have lost their addresses. There are five people living in each home on Fifth Street. Skip count by fives to find how many people live on one side of the street.

| | | |
|---|---|---|
| 5 | 223 | 224 |
| _____ | 225 | 226 |
| _____ | | 228 |
| _____ | 229 | |
| _____ | | |
| _____ | | 234 |

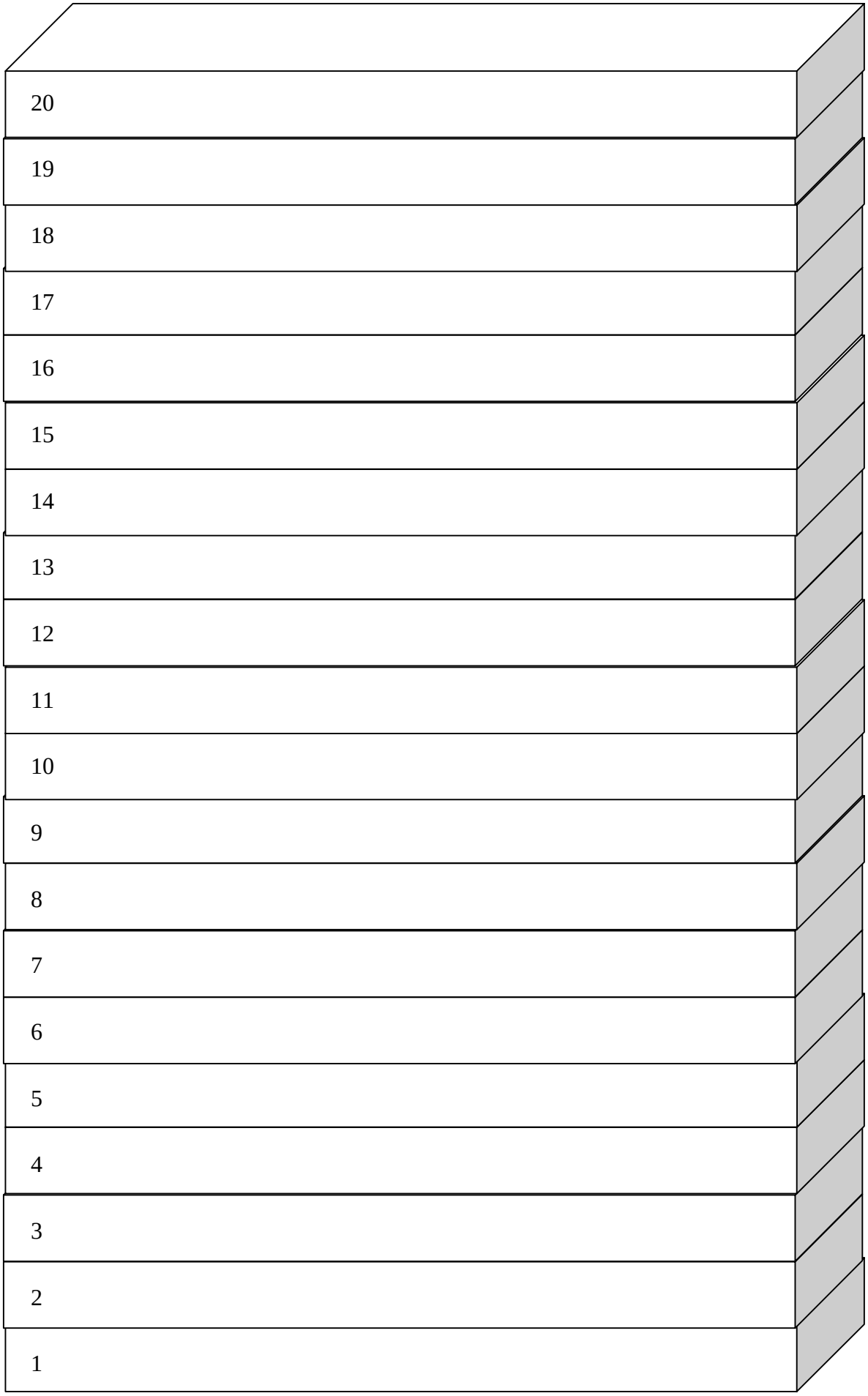
# Answer Key

Name_____

## Extension of the Fifth Street Homes

Number the homes that have lost their addresses. There are five people living in each home on Fifth Street. Skip count by fives to find how many people live on one side of the street.

| | | |
|---|---|---|
| 5 | 223 | 224 |
| 10 | 225 | 226 |
| 15 | 227 | 228 |
| 20 | 229 | 230 |
| 25 | 231 | 232 |
| 30 | 233 | 234 |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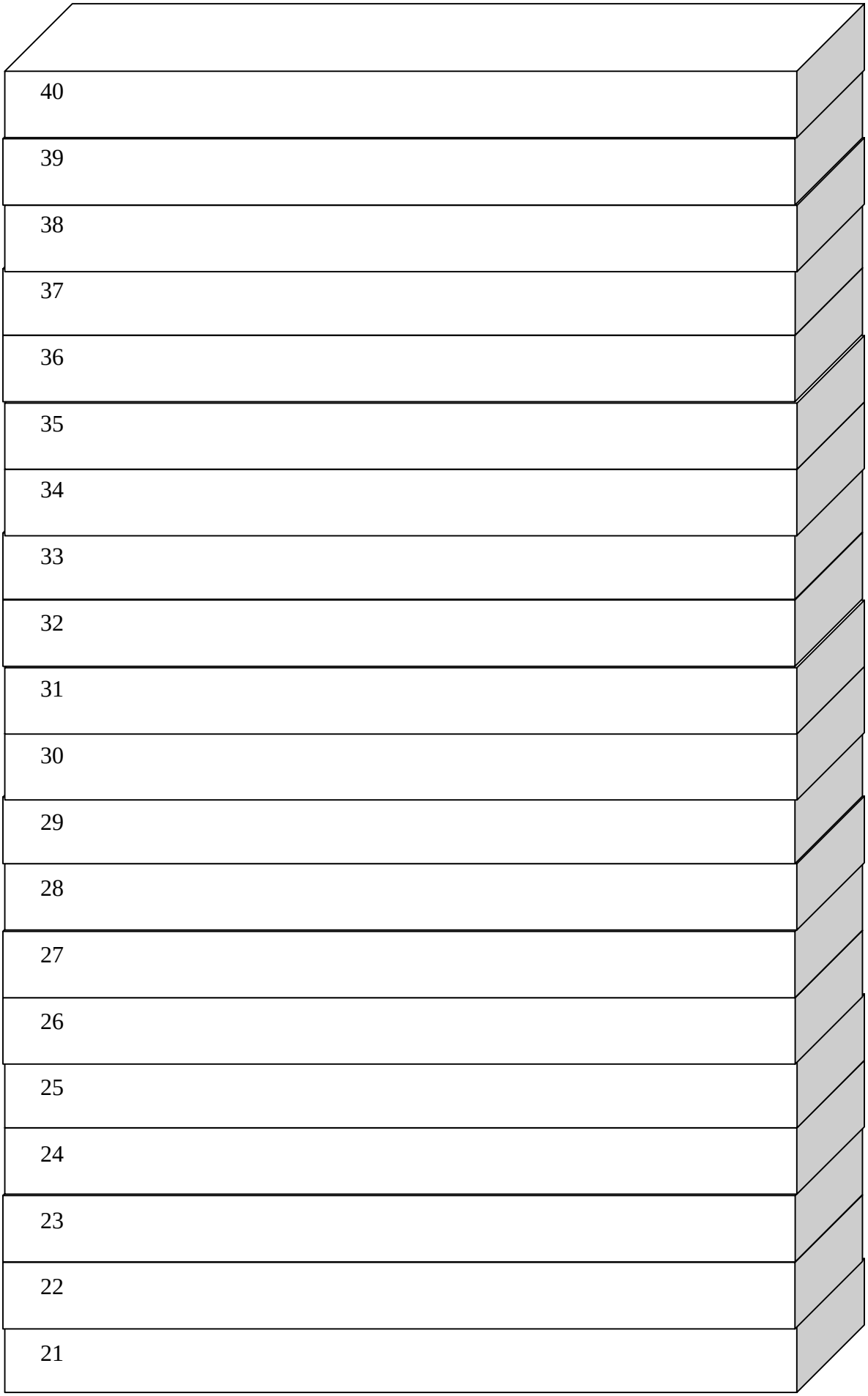
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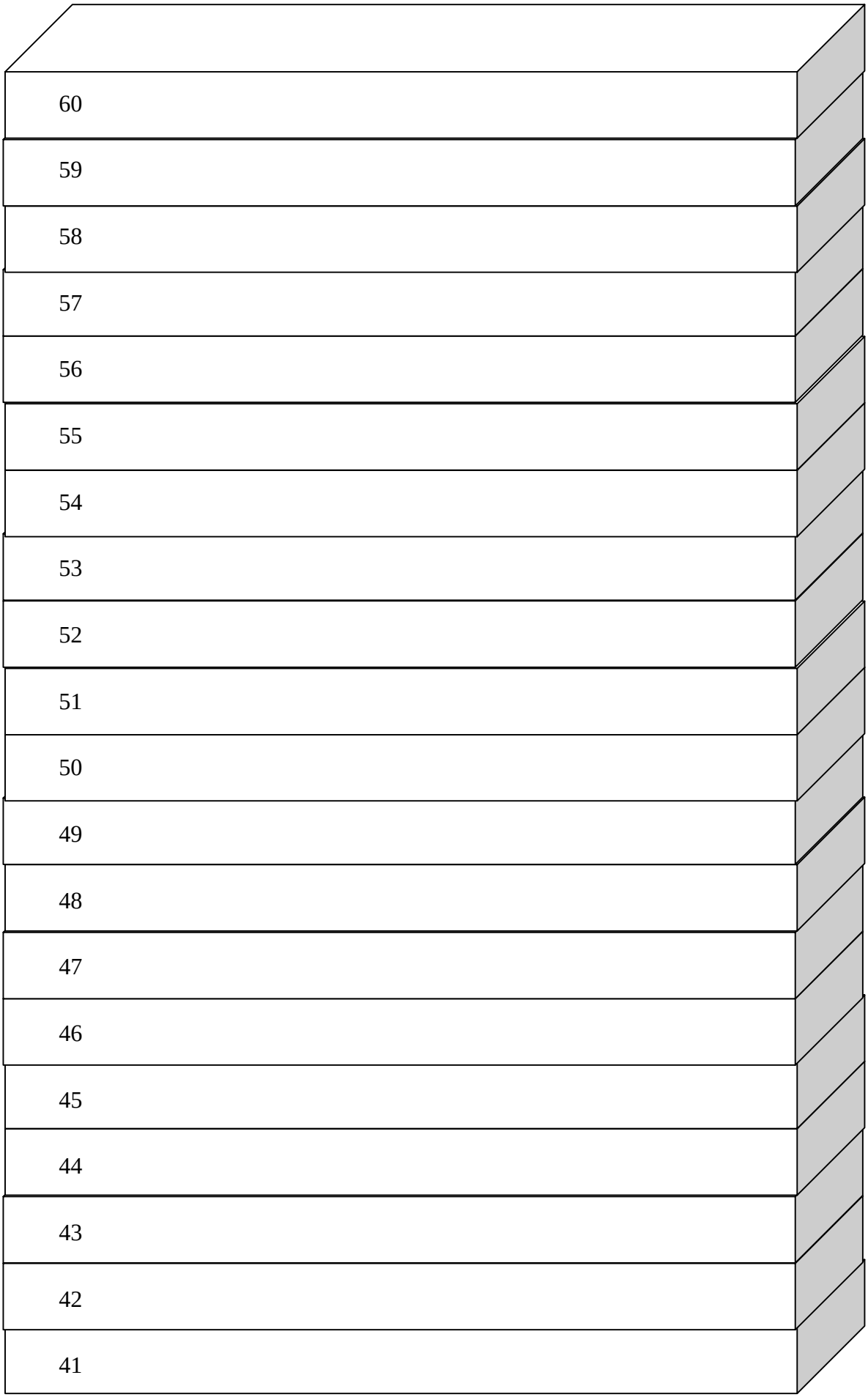
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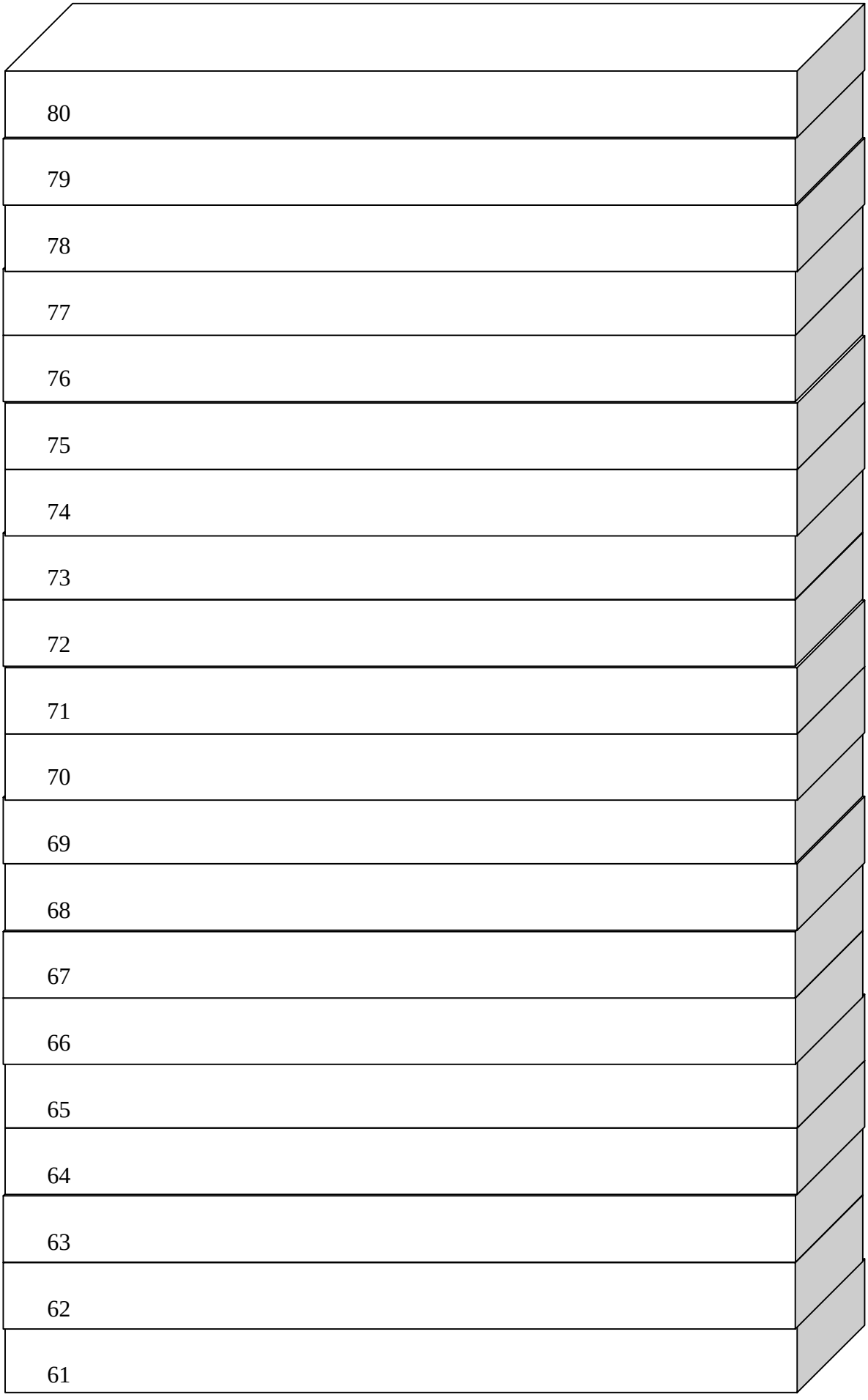
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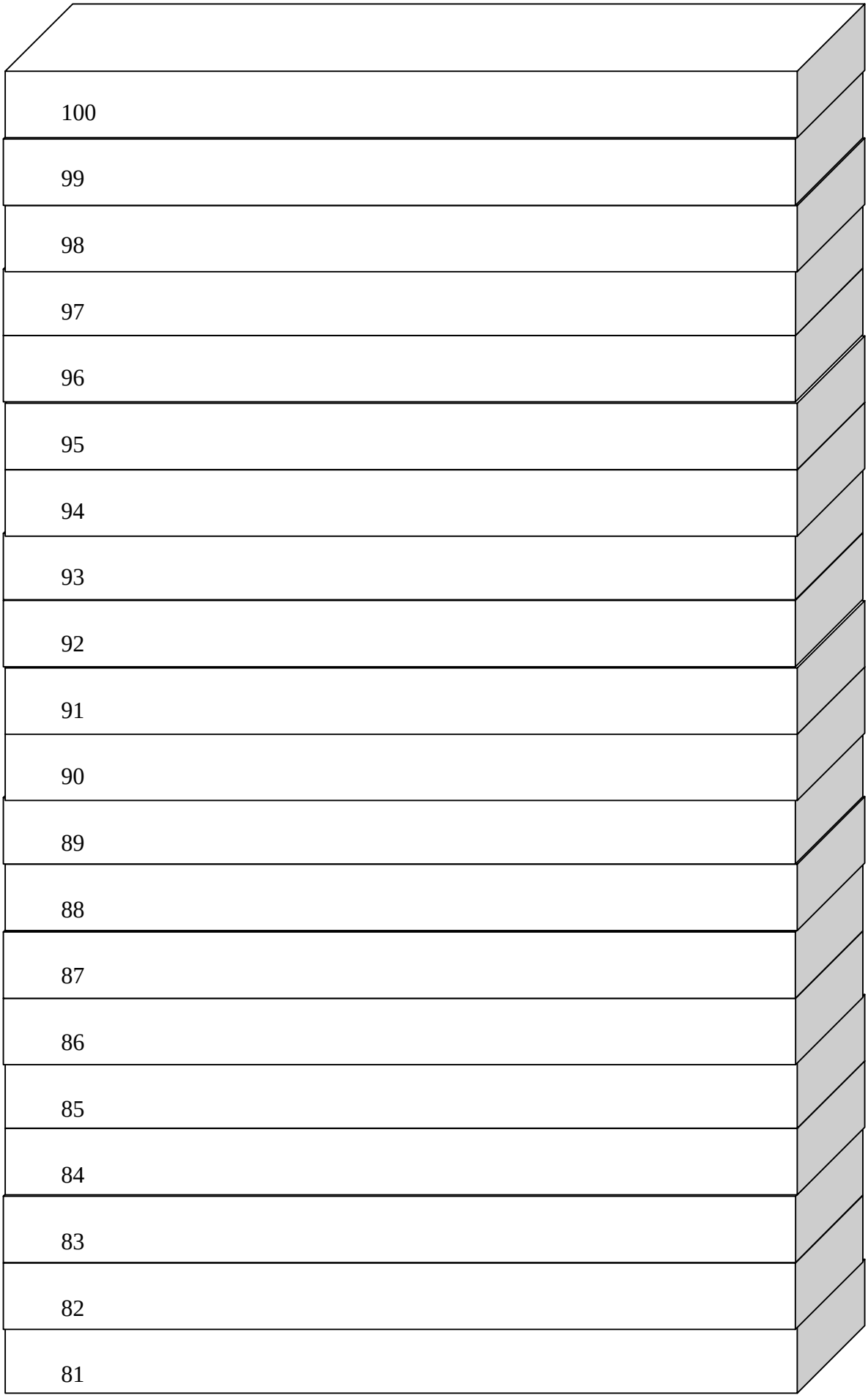
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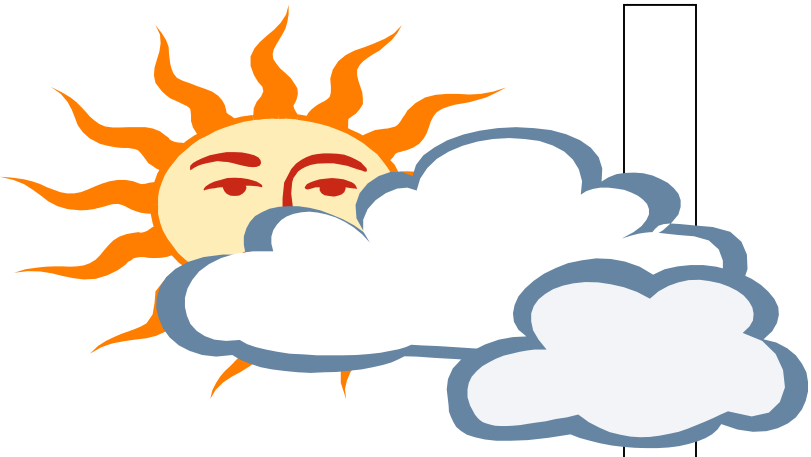

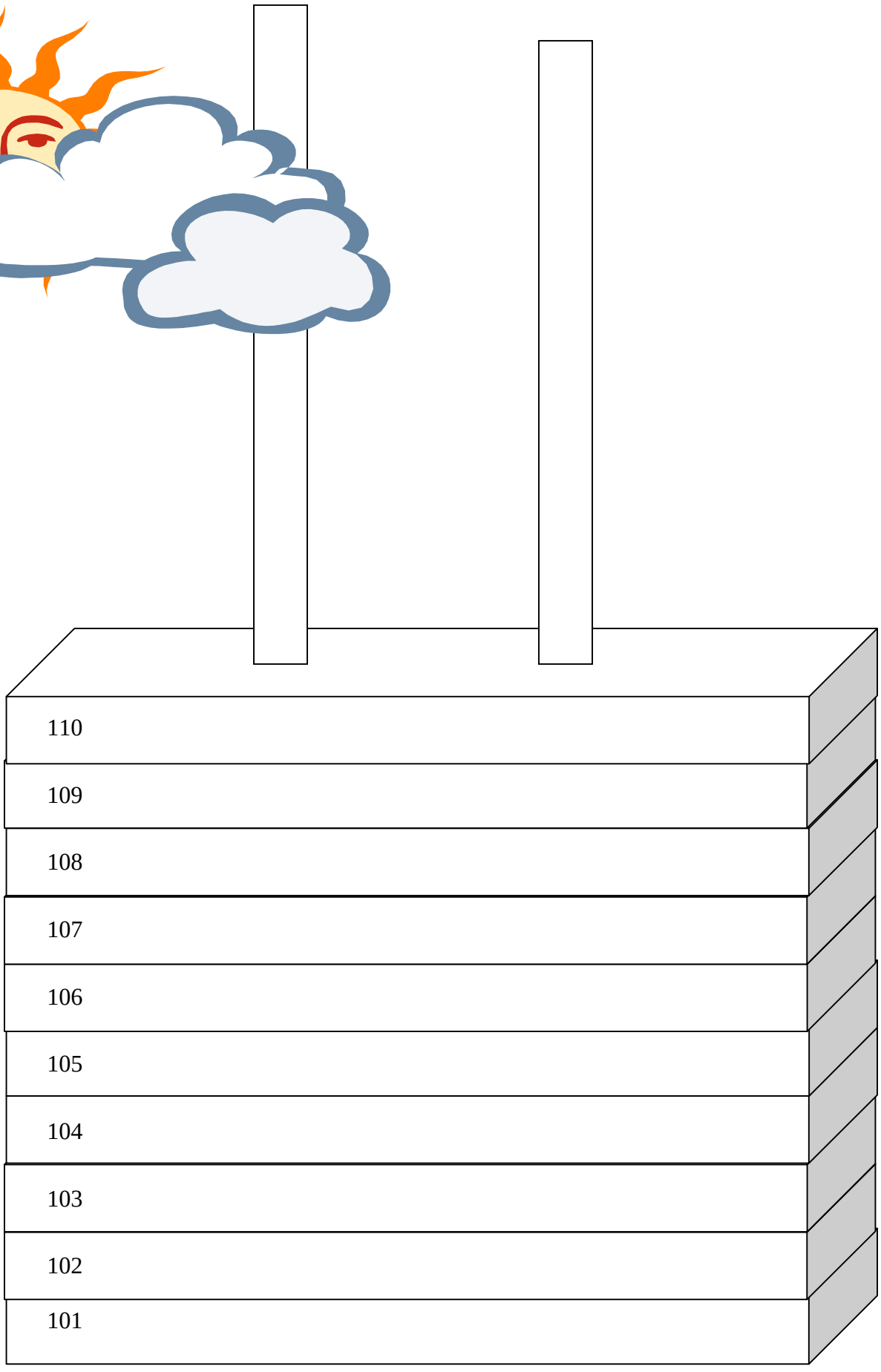
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Name_____

# Which Floor Am I On?

You play hide and seek with your friend in this building. Your friend says that she will hide only on certain floors. Follow the clues below and color in the floors you will search.

Start at floor 5.
Go up every 5 floors.

| |
|---|
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
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| 10 |
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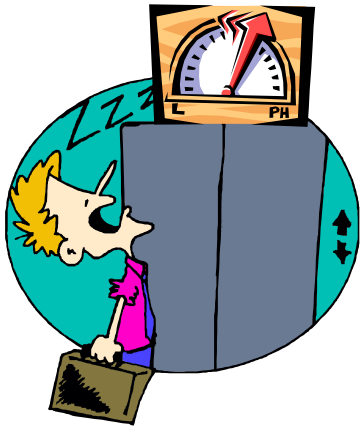
| 4 |
| 3 |
| 2 |
| 1 |




Start at floor 12.
Go up every 10 floors.

| |
|---|
| 32 |
| 31 |
| 30 |
| 29 |
| 28 |
| 27 |
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| 25 |
| 24 |
| 23 |
| 22 |
| 21 |
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |

Color in the floors you will search if your friend is hiding on every <u>fifth</u> floor. Start with floor **20** and then go down every 5 floors. Which other places will you search?

Color in the floors you will search if your friend is hiding on every <u>tenth</u> floor. Start with floor **31** and then go down every 10 floors.

| 20 |
|---|
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
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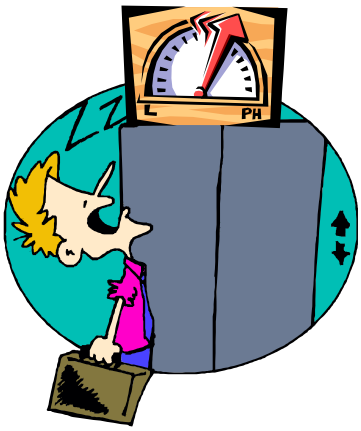


| 32 |
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| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |

# Answer Key

Name_____

## Which Floor Am I On?

You play hide and seek with your friend in this building. Your friend says that she will hide only on certain floors. Follow the clues below and color in the floors you will search.

Start at floor 5.
Go up every 5 floors.

| |
|---|
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
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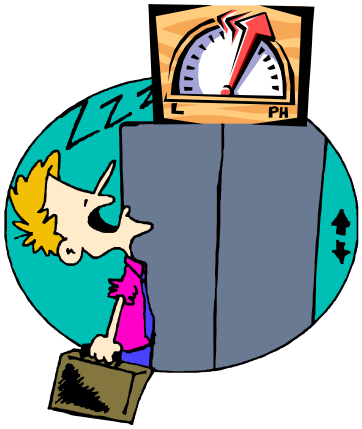
| 1 |




Start at floor 12.
Go up every 10 floors.

| |
|---|
| 32 |
| 31 |
| 30 |
| 29 |
| 28 |
| 27 |
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| 24 |
| 23 |
| 22 |
| 21 |
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |

# Answer Key

Color in the floors you will search if your friend is hiding on every fifth floor. Start with floor **20** and then go down every 5 floors. Which other places will you search?

| |
|---|
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
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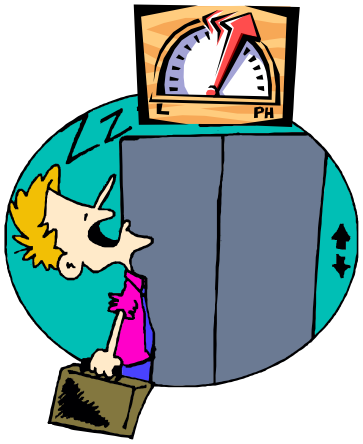


Color in the floors you will search if your friend is hiding on every tenth floor. Start with floor **31** and then go down every 10 floors.

| |
|---|
| 32 |
| 31 |
| 30 |
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| 28 |
| 27 |
| 26 |
| 25 |
| 24 |
| 23 |
| 22 |
| 21 |
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |

Name_____

Review: Which Floor Am I On?

You play hide and seek with your friend in this building. Your friend says that she will hide only on certain floors. Color in the floors you will search.

Start at floor 2.
Go up every 2 floors.

| |
|---|
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
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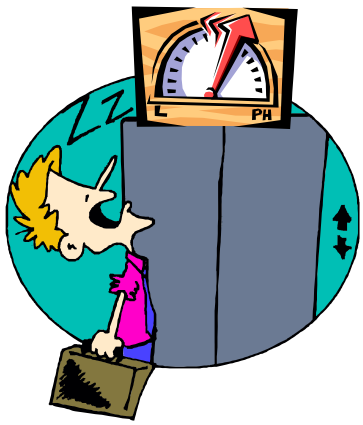



Start at floor 12.
Go up every 2 floors.

| |
|---|
| 32 |
| 31 |
| 30 |
| 29 |
| 28 |
| 27 |
| 26 |
| 25 |
| 24 |
| 23 |
| 22 |
| 21 |
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |

Start at floor 20.
Go down every 5 floors.

| |
|---|
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |
| 10 |
| 9 |
| 8 |
| 7 |
| 6 |
| 5 |
| 4 |
| 3 |
| 2 |
| 1 |

Start at floor 32.
Go down every 10 floors.

| |
|---|
| 32 |
| 31 |
| 30 |
| 29 |
| 28 |
| 27 |
| 26 |
| 25 |
| 24 |
| 23 |
| 22 |
| 21 |
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |

# Answer Key

Name_____

## Review: Which Floor Am I On?

You play hide and seek with your friend in this building. Your friend says that she will hide only on certain floors. Color in the floors you will search.

Start at floor 2.
Go up every 2 floors.

| |
|---|
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |
| 10 |
| 9 |
| 8 |
| 7 |
| 6 |
| 5 |
| 4 |
| 3 |
| 2 |
| 1 |

Start at floor 12.
Go up every 2 floors.

| |
|---|
| 32 |
| 31 |
| 30 |
| 29 |
| 28 |
| 27 |
| 26 |
| 25 |
| 24 |
| 23 |
| 22 |
| 21 |
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |

# Answer Key

Start at floor 20.
Go down every 5 floors.

| 20 |
|---|
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |
| 10 |
| 9 |
| 8 |
| 7 |
| 6 |
| 5 |
| 4 |
| 3 |
| 2 |
| 1 |

Start at floor 32.
Go down every 10 floors.

| 32 |
|---|
| 31 |
| 30 |
| 29 |
| 28 |
| 27 |
| 26 |
| 25 |
| 24 |
| 23 |
| 22 |
| 21 |
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |



Name_____

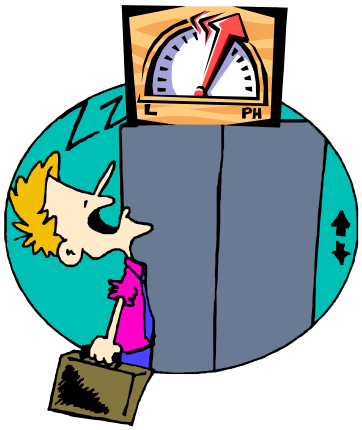
## Extend: Which Floor am I On?

You play hide and seek with your friend in this building. Your friend says that she will hide only on certain floors.

Color in the floors you will search if your friend is hiding on every <u>fifth</u> floor. Start with floor **18** and then go down every 5 floors. Which other places will you search?

Color in the floors you will search if your friend is hiding on every <u>tenth</u> floor. Start with floor **69** and then go down every 10 floors.

| |
|---|
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |
| 10 |
| 9 |
| 8 |
| 7 |
| 6 |
| 5 |
| 4 |
| 3 |
| 2 |
| 1 |



| |
|---|
| 69 |
| 68 |
| 67 |
| 66 |
| 65 |
| 64 |
| 63 |
| 62 |
| 61 |
| 60 |
| 59 |
| 58 |
| 57 |
| 56 |
| 55 |
| 54 |
| 53 |
| 52 |
| 51 |
| 50 |
| 49 |
| 48 |

# Answer Key

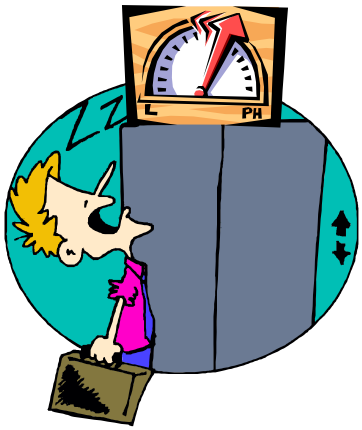
Name_____

## Extend: Which Floor am I On?

You play hide and seek with your friend in this building. Your friend says that she will hide only on certain floors.

Color in the floors you will search if your friend is hiding on every <u>fifth</u> floor. Start with floor **18** and then go down every 5 floors. Which other places will you search?

| |
|---|
| 20 |
| 19 |
| 18 |
| 17 |
| 16 |
| 15 |
| 14 |
| 13 |
| 12 |
| 11 |
| 10 |
| 9 |
| 8 |
| 7 |
| 6 |
| 5 |
| 4 |
| 3 |
| 2 |
| 1 |




Color in the floors you will search if your friend is hiding on every <u>tenth</u> floor. Start with floor **69** and then go down every 10 floors.

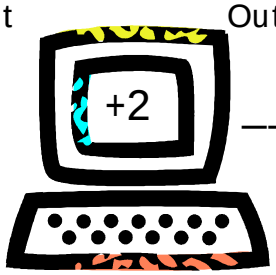
| |
|---|
| 69 |
| 68 |
| 67 |
| 66 |
| 65 |
| 64 |
| 63 |
| 62 |
| 61 |
| 60 |
| 59 |
| 58 |
| 57 |
| 56 |
| 55 |
| 54 |
| 53 |
| 52 |
| 51 |
| 50 |
| 49 |
| 48 |

# COMPUTER CALCULATOR-PRACTICE

Name: _____

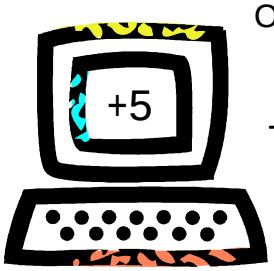
Our computers need your help to find the output. Use what we did in class to find the output for each problem. Thanks for your help!!!

1. Input Output

6 

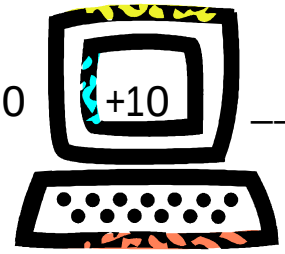
___

2. Input Output

10 

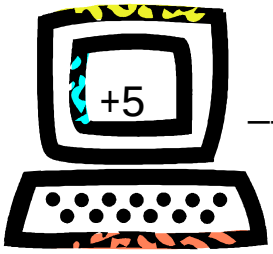
_____

3. Input Output

20 

____

4. Input Output

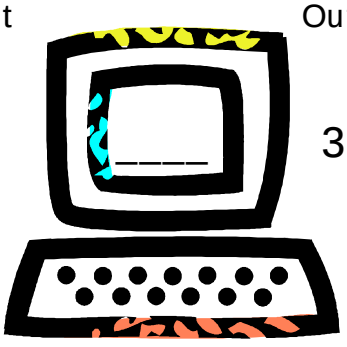
35 

_____

Now, it is your turn to try and find the rule! You are given the input and the output. Please insert the rule that tells what is happening in each computer.

5.

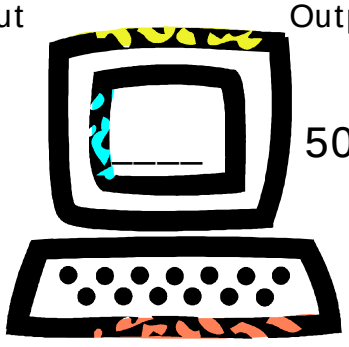
Input Output

25 

30

6.

Input Output

40 

50

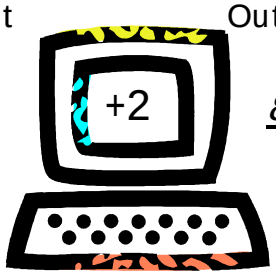
# Answer Key

## COMPUTER CALCULATOR-PRACTICE

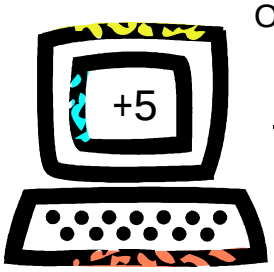
Name: _____

Our computers need your help to find the output. Use what we did in class to find the output for each problem. Thanks for your help!!!

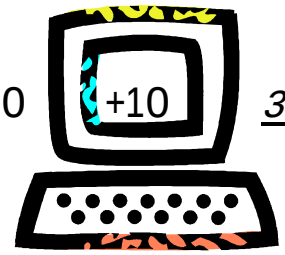
1. Input 6 → +2 → Output *8*



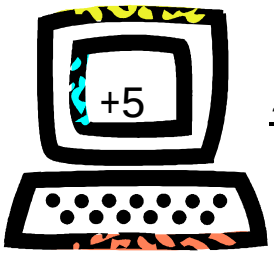
2. Input 10 → +5 → Output *15*



3. Input 20 → +10 → Output *30*

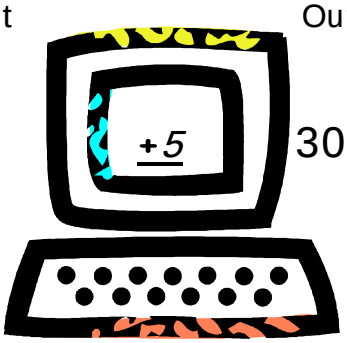


4. Input 35 → +5 → Output *40*

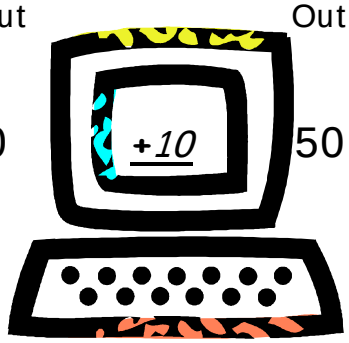


Now, it is your turn to try and find the rule! You are given the input and the output. Please insert the rule that tells what is happening in each computer.

5. Input 25 → *+5* → Output 30



6. Input 40 → *+10* → Output 50

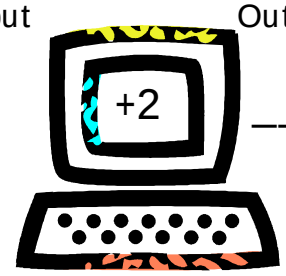


# COMPUTER CALCULATOR-REVIEW

Name: _____

The computers are broken and need our help! They are not giving us the output! Use the equation below each computer to help us find the output.

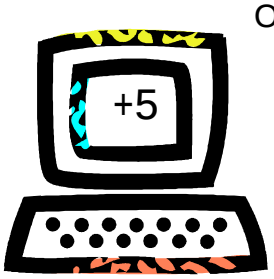
1. Input Output

2  ___



2 + 2 = ___

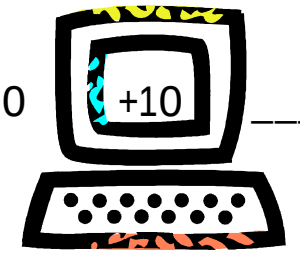
2. Input Output

5  ____



5 + 5 = ___

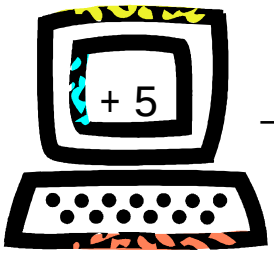
3. Input Output

10  ____



10 + 10 = ___

4. Input Output

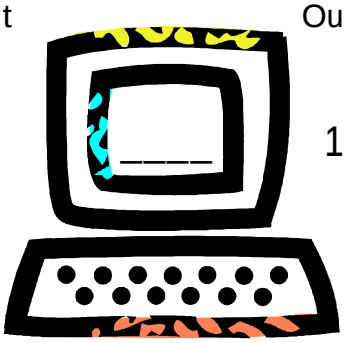
25  _____



25 + 5 = ___

Please help us find the rule! Think about what is happening in each computer! (Use your hundreds chart for help.)

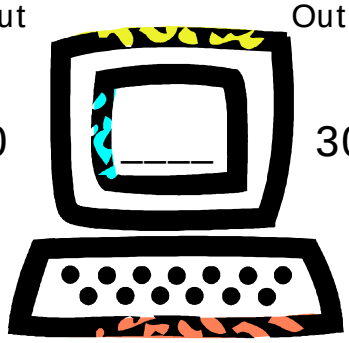
5. Input Output

10  15



10 + ___ = 15

6. Input Output

20  30



20 + ___ = 30

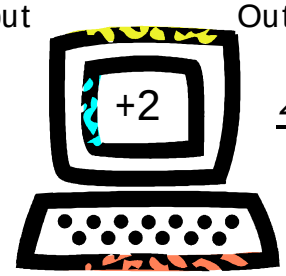
Answer Key

# COMPUTER CALCULATOR-REVIEW

Name: _____

The computers are broken and need our help! They are not giving us the output! Use the equation below each computer to help us find the output.

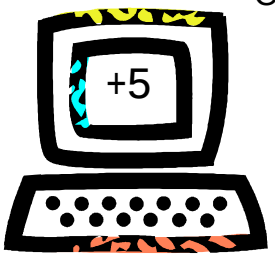
1. Input Output

2  *4*



2 + 2 = *4*

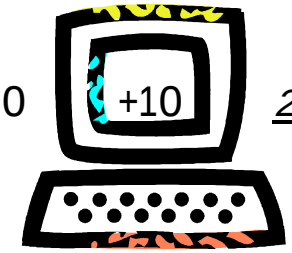
2. Input Output

5  *10*



5 + 5 = *10*

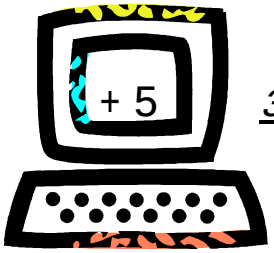
3. Input Output

10  *20*



10 + 10 = *20*

4. Input Output

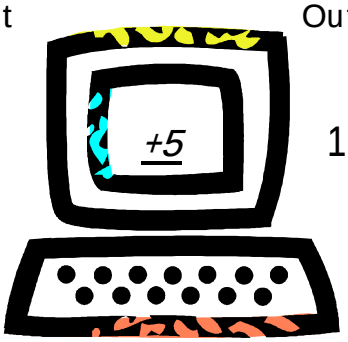
25  *30*



25 + 5 = *30*

Please help us find the rule! Think about what is happening in each computer! (Use your hundreds chart for help.)

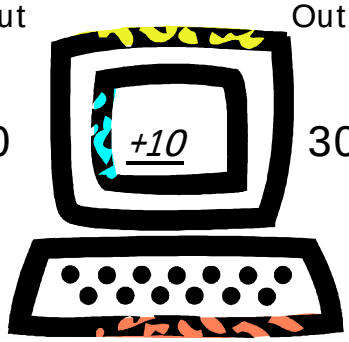
5. Input Output

10  15



10 + *+5* = 15

6. Input Output

20  30



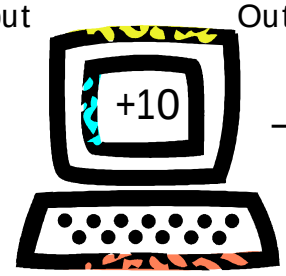
20 + *+10* = 30

# COMPUTER CALCULATOR-EXTENSION

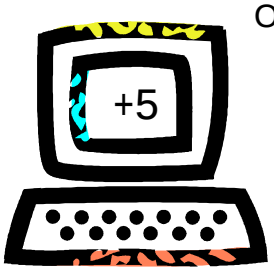
Name: _____

Here are more computers that need to be fixed!

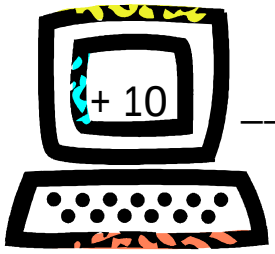
1. Input 57 → +10 → Output ___



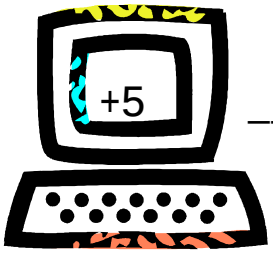
2. Input 33 → +5 → Output ___



3. Input 42 → + 10 → Output ____

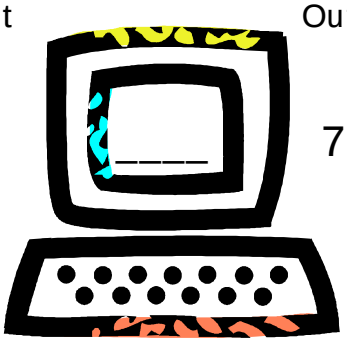


4. Input 27 → +5 → Output _____

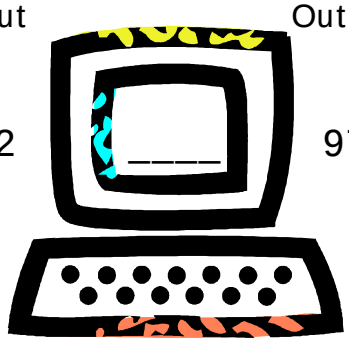


Find the rule that helps us fix these computers.

5. Input 64 → ____ → Output 74



6. Input 92 → ____ → Output 97



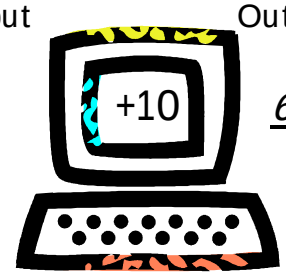
# Answer Key

## COMPUTER CALCULATOR-EXTENSION

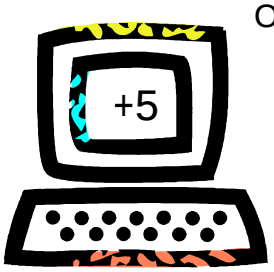
Name: _____

Here are more computers that need to be fixed!

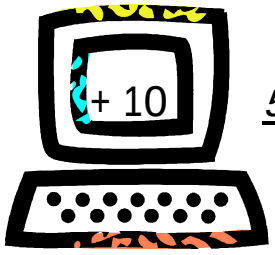
1. Input 57 → +10 → Output *67*



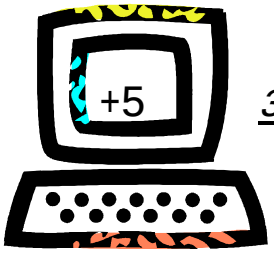
2. Input 33 → +5 → Output *38*



3. Input 42 → + 10 → Output *52*

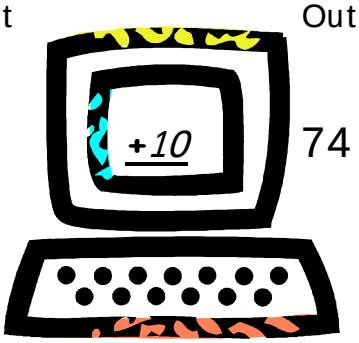


4. Input 27 → +5 → Output *32*

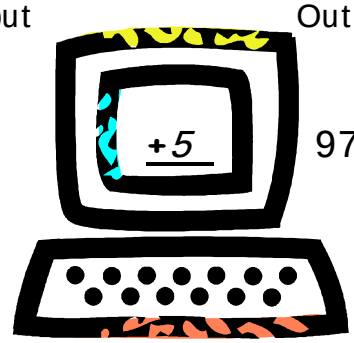


Find the rule that helps us fix these computers.

5. Input 64 → *+10* → Output 74



6. Input 92 → *+5* → Output 97



# Summative Assessment

Name: _____

1. Look at the following pattern. Find the number that does not belong.

4 , 6 , 8 , 11 , 12 , 14

Ⓐ 4

Ⓑ 14

Ⓒ 11

Ⓓ 6

2. Find the missing number.

12 , 22 , ___ , 42 , 52

Ⓐ 32

Ⓑ 27

Ⓒ 23

Ⓓ 24

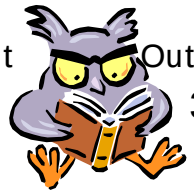
3. The owl was reading his math book when suddenly the wind blew the pages of his book forward. This happened 3 times. Help him find how many pages the book keeps skipping ahead.

(Input= starting page, Output= ending page)

_____ _____ _____

Input 25  Output 30

Input 51  Output 56

Input 33  Output 38

What is happening each time to the numbers? _____

Explain how you found your answer. You may use words or numbers to help you answer.

_____

_____

_____

_____

# Summative Assessment Answer Key

Name: _____

1. Look at the following pattern. Find the number that does not belong.

4 , 6 , 8 , 11 , 12 , 14

Ⓐ 4

Ⓑ 14

Ⓒ 11

Ⓓ 6

2. Find the missing number.

12 , 22 , ___ , 42 , 52

Ⓐ 32

Ⓑ 27

Ⓒ 23

Ⓓ 24

3. The owl was reading his math book when suddenly the wind blew the pages of his book forward. This happened 3 times. Help him find out how many pages the book keeps skipping ahead.

(Input= starting page, Output= ending page)

*+ 5*

Input 25  Output 30

*+ 5*

Input 51  Output 56

*+ 5*

Input 33  Output 38

What is happening each time to the numbers? *We add 5 or + 5*

Explain how you found your answer. You may use words or numbers to help you answer.

*I looked to see what page the book started on (input) and on what page the story ended (output). I used my 100s chart (or number line) to help me find the answer. I found that each time the book skipped ahead 5 pages. The rule is to add 5.*

***If this is too advanced for your students to write out, modify and provide the students with sentence starters or a writing prompt. ***

# HUNDRED CHART

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 60 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |